

Reza Gheibi

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Norman, OK, USA

Ph.D. Candidate in Computer Science with expertise in Artificial Intelligence, Machine Learning, and High-Performance Computing. Over five years of experience designing and implementing AI-driven research workflows, mentoring students, and collaborating with multidisciplinary STEM researchers. Skilled in deep learning, generative models, and large-scale data processing using GPUs and distributed environments. Passionate about democratizing AI in research, developing scalable training programs, and supporting faculty and students in integrating AI methodologies into their projects.

Key Skills & Competencies

- **AI & ML:** Predictive modeling, deep learning, transformer models, generative AI, diffusion models, GANs, feature engineering
- **Programming:** Python, C++, Java, MATLAB, SQL, Bash
- **Frameworks & Tools:** PyTorch, HuggingFace, Scikit-learn, Pandas, NumPy, Matplotlib, Seaborn, NetworkX
- **HPC & Systems:** GPU acceleration, parallel processing, Linux/Unix, Xilinx HLS, Vivado
- **Research & Collaboration:** Cross-disciplinary AI consulting, proposal writing, research mentorship, AI ethics and explainability
- **Data Engineering:** Data preprocessing, tabular-to-text transformation, class imbalance handling, data augmentation
- **Education & Training:** Curriculum development, technical instruction, mentoring students / researchers
- **Operating systems:** Linux, Windows.
- **Soft Skills:** Research leadership, cross-functional collaboration, technical presentations Effective Communication, Problem-Solving, Time Management, Great at working independently and teamwork, Adaptability, Critical Thinking.

Professional Experience

Machine Learning Researcher | University of Oklahoma, Norman, OK

- Lead AI research initiatives integrating machine learning, generative models, and biomedical data for improved classification and interpretability.
- Developed and deployed end-to-end AI pipelines for healthcare applications, improving classification accuracy by 3% using fine-tuned biomedical models (BioBERT, PubMedBERT).
- Built and optimized generative and transformer models (LLMs, GANs, diffusion) with HuggingFace + PyTorch, enabling scalable AI applications across healthcare and STEM domains.
- Engineered feature selection, augmentation, and class balancing strategies that improved F1 scores and recall in imbalanced datasets.
- Conducted community detection on COVID-19 networks using NetworkX, Pandas, and NumPy, visualizing influential nodes and connections with Matplotlib.
- Designed and implemented C++ algorithms for compressed matrix operations, targeting FPGA acceleration with Xilinx HLS and Vivado tools.
- Collaborated with cross-disciplinary research teams and contributed to data analysis and publication
- Supported proposal preparation and technical documentation for grant submissions in AI and data-driven research.

Graduate Assistant | University of Oklahoma, Norman, OK

- Provided technical instruction and mentorship to 500+ students in programming, software engineering, and debugging.

- Designed and delivered curriculum for C, Java, and introductory computing courses, both in-person and online.
- Trained students in version control (Git/GitHub), and collaborative research development workflows.
- Supported course development, troubleshooting, and integration of cloud-based tools (Office 365, HTML environments).
- Enhanced student success through technical leadership, problem-solving guidance, and hands-on coding instruction.

Research Scientist | Azad University, Iran.

- Designed classical and quantum image processing algorithms in MATLAB for signal and visual data analysis.
- Simulated and implemented classical and quantum communication protocols.
- Applied mathematical modeling and computational techniques to advance research in image and quantum information processing..

Education

- **Ph.D., Computer Science,**
University of Oklahoma, Norman, OK, USA.
Focus: Machine Learning, Generative AI, Biomedical AI, Software Engineering
- **M.Sc., Computer Software Engineering,**
Azad University
- **B.Sc., Computer Software Engineering,**
Razi University

Certifications

- Hands-On PyTorch Machine Learning
- Processing Text with Python – LinkedIn Learning
- TensorFlow for AI, ML & DL – Coursera
- Intro to TensorFlow – Coursera

Selected Projects & Research Contributions

- Cervical Cancer Classification: Applied tabular-to-text transformation and fine-tuned biomedical LLMs, improving interpretability and performance in clinical AI workflows.
- Synthetic Data Generation: Leveraged GANs and TabGAN for data augmentation, enhancing robustness of predictive models.
- COVID-19 Network Analysis: Performed large-scale influence and community detection analysis to study pandemic-related data dynamics.
- Graph Algorithms on FPGA: Developed high-performance C++ linear algebra algorithms for graph data, optimized for FPGA acceleration.

Awards & Honors

- Provost's Certificate of Distinction in Teaching, University of Oklahoma.
- Full-Time Graduate Assistant Grant (Ph.D.)
- Multiple departmental scholarships (Boggs, Prokesh, Farzaneh Family, CS Alumni Fellowship)
- Research Award, Young Researchers Club, Azad University
- Ranked 1st among 100+ students during B.S. studies

Volunteer Work

- Taught high school students programming during OU Engineering Camp.
- Organized university events and coordinated student-industry engagement
- Participated in community service through OU's Big Event.